SINC - LINK

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NEWSLETTER INDEX

PERSONNA BASICARE SYSTEM

HELP! HELP!! Can anyone help me with information on how to use a PERSONNA ZX81 BASICARE system. I have the Personna, Minimap, Drom with Userfont, Pericon C, Sonus, and RAM16 modules. There seems to be minimum documentation provided for this system, and I'm lost. I would appreciate hearing from anyone who has such a system, with a view to sharing information,tips,etc. on its operation. My address is: Evelyn Mcmillan, 5851 Pt. Pleasant Dr., Halifax, N.S. Canada, B3H 1B7

FOR SALE

2 - TS2068 Computers	$150 ea.
2 - TS2040 Printers	$60 ea.
1 - A & J Microdrive & I/face	$150
1 - Rotronics Dual M/drive	$175
1 - Rainbow Emulator	$50
30 - Wafadrive Wafers - three sizes	$4 ea.

Contact:
Neil Maragno
325 Woodward Ave., Hamilton,Ont. L8H 6N4

TEXT MANIPULATIONS

By Stewen Pocock

Listed below are four routines that will manipulate text to enhance text presentation in a program.

Peter McMullin's expanding text line program (prints from the center outwards) is listed in lines 159-340. Printing only one line of 32 chr$ is somewhat restrictive so a second subroutine (lines 10-105) is used so that any length of text can be printed to the screen. The "set up 32 chr$/line" subroutine partitions the text, in this case stored in array A$ into 32 chr$ per line and stores this subset as Q$. Lines 60 and 105 then call a print subroutine; let ZZ=199 for center outwards printing; ZZ=499 for left to right printing and ZZ=600 for right to left printing. For a better description of the set up routine see SYNC Vol 2 #6,P62.

Left to right printing prints text flush to the left hand margin. (left justified). I found that printing right to left however didn't look as nice when the last partial line of text was left justified so lines 602 and 603 will position any partial line of text in the center of the screen. To make text left justified change line 603 to "IF LEN Q$<31 THEN LET Q$=Q$+L$(TO (31-LEN Q$))". L$ only needs to be 15 spaces for centering text and 32 spaces for left justified print. When using left to right printing if you don't like the looks of the last partial line of text being left justified then insert the equivalent of lines 602 and 603 before line 500.

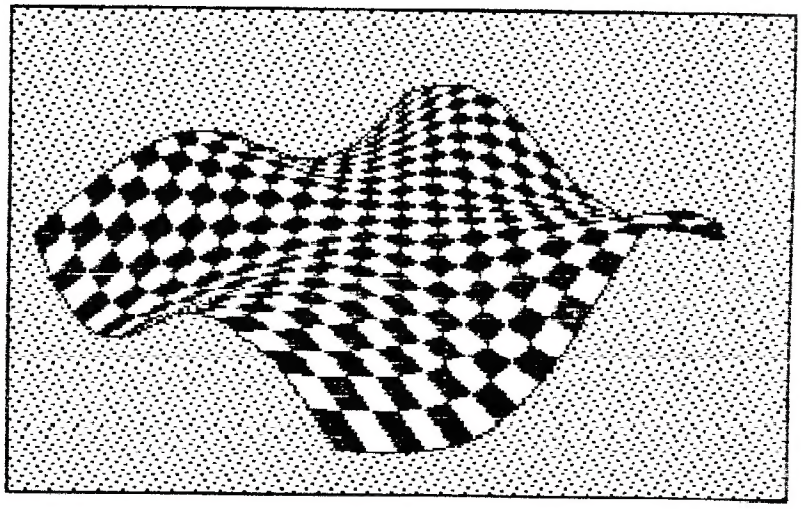
```
    5 REM SET UP 32 CHR$/LINE
   10 LET A$="THIS IS A TEST TO D
ETERMINE IF THIS PROGRAM WILL WO
RK AND IF IT DOESENT ILL HAVE TO
 GO BACK TO THE DRAWING BOARD"
   15 REM SET UP 32 CHR$/LINE
   19 LET L=1
   20 FOR R=32 TO LEN A$ STEP 32
   30 FOR K=0 TO 32
   40 IF A$(R-K)=CHR$ 0 THEN GOTO
 60
   50 NEXT K
   60 LET Q$=A$((R-31) TO (R-K))
   65 GOSUB ZZ
   70 LET R=R-K
   80 IF (R+32)>LEN A$ THEN GOTO
100
   90 NEXT R
  100 LET Q$=A$((R+1) TO )
  105 GOSUB ZZ
  106 STOP
  159 REM PRINT FROM CENTER OUT
  200 IF LEN Q$/2<>INT (LEN Q$/2)
 THEN LET Q$=Q$+" "
  205 LET E=LEN Q$
  210 LET M=E/2
  220 FOR N=1 TO M
  225 PRINT AT L,16-N;Q$( TO N)+Q
$(E+1-N TO E)
  230 NEXT N
  235 LET L=L+1
  340 RETURN
  499 REM PRINT LEFT TO RIGHT
  500 LET A=LEN Q$
  510 FOR N=A TO 1 STEP -1
  515 PRINT AT L,0;Q$(N TO A)
  520 NEXT N
  523 LET L=L+1
  525 RETURN
  600 REM PRINT RIGHT TO LEFT
  602 LET L$="
                "
  603 IF LEN Q$<31 THEN LET Q$=L$
( TO (32-LEN Q$)/2)+Q$+L$( TO (3
2-LEN Q$)/2)
  605 LET A=LEN Q$
  610 FOR N=1 TO A
  615 PRINT AT L,32-N;Q$(1 TO N)
  620 NEXT N
  625 LET L=L+1
  630 RETURN
```

PRESIDENT'S MESSAGE

With the start of the Christmas season I would like to extend to all our members and especially to our newsletter contributors a most Happy and Joyous Christmas.

With the help of many of our members we are concluding a very successful year in our club, and I look forward to a continuation of this trend .

Have a MERRY CHRISTMAS!!



SINCBITS

Ian Robertson
Compuserve 72167,3401
FIDO Net 111/Node 608

UPDATES: The revised Larken DOS (eprom) has been delivered to our members, who have this system, and the concensus is - "it works like a charm, all the bugs are gone". Remember, this is (the only) system compatible with the Spectrum! So much so in fact that George Chambers has SCRABBLE on disk!! Now that is a long program! The November issues of all the UK Sinclair related magazines are carrying pictures plus descriptions (hands-on) of the new Sinclair 128. Needless to say it has 128k and is Spectrum 48k compatible. Before you rush to your credit card to purchase one, be advised that it is presently being made and sold in Spain only. Sinclair is also supposed to be readying a 1024k computer called "The Enigma", which will have two 3.5" drives built in, all the QL bundled programs on ROM and a printer and RGB monitor, retailing in the 500 to 1000 pounds range. I have just received the Zebra QS-64 cartridge and will evaluate it over the next few weeks. At the moment it looks like a great idea, BUT, nobody seems to know how to take advantage of the 64 column mode it provides. Now that the QL price has dropped to $299.00 (US) maybe more of us will be going in that direction. Think about all that great bundled software!

TS2068: I finally made the plunge and am now a full fledged member of the disk-drive-community. I bought the RAMEX/Amdek III system from Ramex International Ltd. 17620 26 Mile Rd. Washington Michigan 48094 (313-781-5800). The price is $299.00 (US) for the COMPLETE system, which includes the DD interface, cables, utility disk and the Amdek III drives. The Amdek III comes completely encased with two 3" Hitachi model FD305S drives, power supply and a fan. This system uses SPDOS, by Abbeydale Designers, which is also used in the UK by Watford Electronics and by Kempston (latest eprom version) in their DD interfaces. After formatting the DDDS diskettes I have 184k useable on each side. Like the Timex Portugal system, each drive has only one disk read head and the diskettes must be flipped over by hand. Not too bad a price to pay, all things considered! With the invaluable help of David Ridge I am becoming fairly DD/computer literate. Now it is not that this system is difficult, it is simply that I have never used a DD before. My only comments are! (1) "HOW LONG HAS THIS BEEN GOING ON?" and (2) "I CAN NOW DO SEVERAL THINGS, WITH THE COMPUTER, IN THE SAME TIME IT PREVIOUSLY TOOK TO DO ONE, WITH CASSETTE!". For example, to use Loader IV, Tasword II and Mterm to upload/download files, with the 2050 modem, was a tedious task which could take up to 30 minutes, if an error was made in the file and it had to be edited out after loaded into Mterm. Now the same thing takes less than 5 minutes (at the most). See how it allows the user to perform more tasks in the same time period! I can not say enough good things about this system as it has enhanced my computing time and abilities in a most positive manner. The only negative aspects of this system is: (1) the DOS occupies RAM from 48999 to 53599, and (2) the documentation should be improved to cover all aspects of this system in a more "user friendly" manner. I understand both of these items are being addressed by Ramex and by Abbeydale Designers. In the meantime our resident genius, David Ridge, is working on a utility to bypass this RAM situation.

SPECTRUM: Latest Spectrum hardware item is the AMX MOUSE, which comes with 4 pieces of software at the astronomical price of $80 (pounds sterling). Already there is an ARTWORX type program which is reported to be compatible with it. Look for THE ARTIST (version 2) to also have a "rodent-of-sorts" compatible with it! My $2 microdrive became so noisy (obviously very bad QA at Sinclair) that I had to return it to Sinclair (under the one year warranty of course).We shall see if their service is as bad as everyone says it is! OCP has a new word processor on the market that is getting 5 star reviews. It is the "WORD MANAGER" and retails for approx. $13.00 (pounds sterling). It can even be purchased on disk - how TS times are a changing! Bob Dyl, of THE ENGLISH MICRO CONNECTION 15 Kilburn Court Newport RI 02840 (401-849-3805) carries this program and all other good Spectrum and QL software. Call first as he does not take plastic. I cannot remember Bob's price on this as this was only one of the many items we talked about in our last 20 minute telephone call. Bob also carries 2 very good Spectrum DD Interfaces - the BETA at $169.00 and the KEMPSTON at $120.00 ($130.00 for a 2068 version edge connector), both are US prices. The BETA has a switch to "save to disk" and only uses 128 bytes of RAM. They also work with the AMDEK III drives. As a bonus the BETA is completely compatible with Interface 1. Think of it - use either disk drives, microdrives or cassette, as you require! These DDI's are definately worth thinking about if you "Spectrumize" more than you use the "as is" 2068. Again, before you buy talk to Bob Dyl.

QL: With the advent of price cutting this computer is starting to sell in large numbers. I just read that Sinclair is producing 5000 a week and still cannot keep up with the demand. This means that the Hardware and Software people are getting more and more involved, because now they can sell in quantity. Bob Dyl is selling a combination DD/Centronics interface with 128k resident RAM for $289.00 and will be getting a 256k "internal" add-on RAM, which goes inside the QL, not stuck on the left side like the others. So, with this additinal memory plus the combination DDI/CPI you would have a 512k QL complete with "bells and whistles". Total price you ask - why it's $299 + $289 + $179 - for a total of $767.00 (US). All you add is "LOVE" and a monitor (plus Canada Customs and delivery of course).

EDITORIAL COMMENT: Our "WORLD OF TS COMPUTING" is bigger and better than ever! Witness the new Sinclair products forthcoming, the pricing and the hard/software support. Who could have imagined, back in Jan. 83, when I bought my first TS1000 that a Timex/Sinclair system would have disk drives, a modem, an 80 column printer, graphics tablet, a Spectrum Mode, RGB monitor plus the "thousands" of programs available. I am truly impressed!!! Even the 64k 1000 now has a disk drive, modem, 80 column printer, JLO video upgrade, a 64 column screen and colour!! With the increase in business software, telecommunications capabilities, word processing capabilities and a general improvement in programming techniques, we have one of the "BEST, MOST COST EFFECTIVE SYSTEMS ON THE MARKET". Remember that, the next time someone says something disparaging about OUR SYSTEM.

Timex sure files when you're having fun. (ugh!) The festive season will be upon us by the time many of you read this. Here's to a happy Yuletide and a promising New Year! Hope you enjoy this last instalment for 1985. In view of last month's soapbox tirade, I promised to keep this intro short. It was.

** BUG ALERT ** BUG ALERT **

Owners of AERCO CP-ZX Vers. 2.2 Centronics interfaces please take note. The AERCO CP2.2 ROM has, in addition to an ASCII printer driver, a Disk Boot routine patched into the machines' initialization. On power-up, it checks for an AERCO Disk interface, and if there is one, it proceeds to load the Directory page from Drive A. If there's no Disk system, the initialization continues, and up comes 0/0 (!). This is because during the Disk? check, the CP2.2 actually forces the machine to execute a BASIC line embedded in the EPROM code. Thus, the machine comes up with a 0/0 instead of a K cursor.

To the point: in the midst of this exotic initialization scheme, the CP2.2 somehow sets up addresses 16507 and 16508 to hold a critical status flag for the operating system. To the normal ZX/TS ROM, these two bytes are completely unused and ignored. They frequently get used as a "cache-all" register by many Machine Code programs (e.g. HOT-Z, ZXLR8, & many "toolkits"). The problem is, with the CP 2.2 interface attached, ANY PROGRAM which loads in from tape with values other than 0 in 16507/16508 will crash if you try to BREAK it. Even if a program loads in with these bytes OK, if it changes their value at any time, you are probably out of luck.

Some programs which exhibit this problem can be "cured" by loading the program without the interface attached; Break, then POKE 16507 and 16508 with 0, and re-SAVE the poked version to tape. The new version should now LOAD (and Break) OK with the interface attached.

AERCO now have available an improved version of their CP-ZX ROM, Vers. 2.3, which they claim has the problem eliminated. If you have a 2.2 or earlier version of the AERCO ZX CPI, you should enquire about getting an updated version (either free or for a very nominal price) from AERCO, 7606 Robalo Rd., Austin, TX 78757.

** HARDWARE USER REPORT **

SUBJECT: The JLO Video Upgrade Project, available from
The John L. Oliger Co.,
11601 Whidbey Dr., Cumberland, IN 46229

INTRODUCTION: Since Mr. Oliger manages to keep quite busy without doing any real advertising, a lot of folks are unaware of the fine products he has available for the ZX81. A certain mystique has built up around JLO products, which I hope to dispel. Yes Virginia, John Oliger is a real person, who answers mail, ships orders on a realistic schedule, and has some pretty neat ideas.

Just what sort of peripheral is this Video Project? Let me begin with a sweeping analogy: the Video Upgrade Project is just like a video monitor, a disk interface, or a fullsize printer. Once you hook up a monitor and get used to it, the ol' TV set just won't do anymore. When you get a disk drive, you madly transfer all your software, and then avoid cassettes like the plague. When you get a real printer, the 2040 generally becomes a hi-tech paperweight.

Likewise, after having the Video Project (VP from here on) for a couple months, I loathe going back to the flashing, flickering snail's pace of "normal" video which I have lived with for so long.

WHAT IS IT? Remember the ill-fated Kolorworks board, and the ColorSin81? Both were color video boards for the ZX81, which never really hatched due to various impracticalities. The JLO VP surpasses both. It is elegantly simple, thus economical. The firmware integration to BASIC reflects the same qualities, and is virtually transparent to 99% of existing software.

The VP consists of 2 circuit boards which plug into the back of your computer. These boards have a male edge connection only, and are meant to plug into a motherboard. Compatible motherboards are available from JLO, or from Maplin or Eprom Services in the UK.

Video Board "A" holds a Texas Instruments TMS9918A Video Display Processor, 16K of dedicated Video RAM, and 1 decoder chip. This video RAM does not occupy any of the Z80's address space- the Z80 communicates with the VDP & video RAM through I/O ports 3F & 7F.

Video Board "B" has sockets for two 2764 (8K) EPROMS, and 4 decoder chips. Eprom "A" is mapped to the 0-8K area, and overrides the internal ROM in your computer. It is identical to the ZX BASIC ROM, except for the parts which deal with generating a video diplay. All the real work is now done by the VDP. The Z80 just sends it the necessary data and is free from the actual task of generating video.

WHAT DOES IT DO? Two advantages which are immediately apparent are speed, and continuous display. In SLOW mode, the computer is now almost as fast as in FAST mode. In fact, it can be difficult to tell which mode you're in at times. In FAST mode, the display doesn't go blank. It just remains static until you come to a PAUSE, INPUT, or SLOW command. There is absolutely no screen "jump", flashing, or flickering, at all, in either SLOW or FAST mode. Entering and editing BASIC programs is a real pleasure, especially in FAST mode. The old screen reformatting games of the ZX81 are gone! When you Enter a line, it simply (zap) appears in the listing. LOAD and SAVE are rather interesting. When you enter a LOAD or SAVE command in FAST mode, the command stays on the screen through the tape operation. SAVE and LOAD activity is shown by the border rapidly flashing through a sequence of 16 colors! The effect is similar to that of the 2068 LOAD & SAVE patterns.

How about software compatibility, kit building details, and the bottom line?

SOFTWARE COMPATIBILITY: As mentioned, the JLO VP is compatible with just about all software. The main exceptions are fast machine code arcade games, like Frogger, Pac Rabbit, etc. They run, but so fast they're generally impossible to play. By the same token, some games that were boringly slow before are now a real challenge. Psion Flight Simulator now responds like a jet fighter rather than a Cessna. Mazogs is simply a hoot. BASIC programs with lots of calculations or plotting really benefit, too. The only software I have found that's truly incompatible with the VP uses software-only means to simulate hi-res with the standard machine, or tries to peek the character generator of the ROM to get pattern data. This includes games like Forty Niner, Sea Mines, and ZXtricator, and utilities like N. Elmaleh's SW HI RES and Callisto's Graphica. You simply have to unplug the video boards and use standard video for these programs.

CAVEATS, THE BOTTOM LINE, ETC.: The Video Project, as the name implies, is available only in kit form. You may purchase either just the bare circuit boards with instructions, or get an (almost) complete kit of parts. For $48.95 U.S., you can get both boards and all parts except for the actual VDP chip and its crystal. The TMS9918A VDP chip is available from several parts suppliers at widely varying prices. The best I've seen is $9.95 from Jameco Electronics, in Montreal. The 10.7386MHz. crystal is also generally available for about $5.00. When you order a VP kit, JLO will include a listing of the current best sources for the VDP & crystal. By the time you account for all the tidbits, allowing for a motherboard if you don't already have one, etc., this whole thing is roughly a $100.00 proposition.

The kit instructions are complete and reasonably clear, but I really can't recommend this as a first-time project for the prospective kit builder. You must be able to do very fine soldering on these circuit boards, and some familiarity with good electronic assembly & soldering practices is truly an asset. My only complaint is that, for economy's sake, the feedthrough holes on the double-sided circuit boards are not plated through. This means you must solder in a healthy number of tiny wire feedthrough conductors before mounting any parts on the circuit boards. Believe me, this is a tedious and time consuming task, after which soldering the actual parts in place is a breeze.

A minor modification must be done inside your computer to permit functioning of the VP. The NMI line between the ULA and the CPU must be cut, and a diode and resistor added. This is very simple to do, and does not affect the normal operation of the computer. This mod is much easier to do on the older Issue 1 ZX81 boards than on the later Issue 3 layout.

Last but not least, you must supply and program your own 2764 EPROM for the modified operating system. Mr. Oliger will supply a tape for his 2764 programmer, which contains the necessary code and will automatically program your new EPROM. Most of the code is gotten from your resident ROM, so if you have, for example, Tom Bent's 8K ROM UPGRADE, all the improvements in it will also appear in your new video ROM.

John Oliger has kindly put his operating code in the public domain. If you don't have an Eprom programmer, don't despair. Tom Bent will supply the VP EPROM with his Vers.10 ROM improvements as well, for $25.00. I can supply a VP EPROM based on the TS1000 ROM for $10.00, to cover cost of the EPROM and postage. In either case, you must specify whether you want 16K or 64K RAMTOP initialization, default paper, ink, and border colors, etc. That's the lazy way out, though. An EPROM programmer is a really handy gadget to have around, and represents a modest investment. JLO's programmer is a snap to assemble- it uses plated through holes. Building up a motherboard & EPROM programmer is good practice- it'll sharpen up your soldering skills (and confidence) before tackling the Video Project. And you'll learn a lot more.

ADVANCED FEATURES: So far, we've discussed only how compatible the VP is with existing software. By executing certain RAND USR commands, you can choose between normal ZX characters, or lower case instead of inverse on the screen. The old system variable MARGIN is now the COLOR system variable: you can poke different values to this address to select INK and PAPER from 16 different colors. That's the limit of the extra commands available from BASIC, but by using machine code to communicate with the VDP, it is capable of 32, 40, or 64 column screens, true hi-res color graphics which are in some respects superior to 2068 graphics capabilities, and real sprites, definable on 32 different planes! In addition to this, the VP removes virtually all the funny display-dependent limitations of the machine. Minor modifications will permit machine code to run anywhere in 64K, and even Mode 2 interrupts can be used. For machine code programmers, the IX register is now available for use, and the R register is used in the normal Z80 fashion. No limitations exist on the location of DFILE in RAM, and "illegal" characters (i.e. tokens) can even be poked into the DFILE without causing a crash. Since the character patterns are stored in video RAM rather than in ROM, it is possible to have programs load in with user-defined character sets- excellent for games and wordprocessors. I'm now running Word Sinc II.5 with upper and lower case onscreen, as well as special symbols for control characters. Prospective software support is exciting, too: Silicon Mountain Software now have a tape version of Memotext with a 64 col. onscreen viewing option, as well as a 64-col. hi res color extended BASIC for release in the not too distant future. And Callisto Software will be producing an exotic graphics toolkit for use with BASIC, as well as a hi-res screen, color version of Sinc-Artist!

IN CONCLUSION: The JLO Video Upgrade Project is an extremely well conceived and executed product. For the ZX81/TS1000 hobbyist, this is an excellent opportunity. It gives you speed and video capabilities at least equal to the 2068 (the video is actually MUCH more stable), and improves the performance of most existing software. You get SUPPORT, too. If you can't get your kit to work, you can send it back to JLO along with $15.00, and he will locate & fix the problem for you.

FEATURED NEXT ISSUE: THE AERCO FD-ZX FLOPPY DISK

TELECOMPUTING-PART 3

by David C. Ridge

First I would like to clear up a couple of things. It seems that in last month's article I told you everything you need to know about CompuServe except how to get to the Timex/Sinclair sig!! Sorry about that. You simply type GO CLUB at any <!> prompt and you will be taken to the land of the orphaned computers. Also I mentioned that a one year subscription to ON LINE TODAY magazine is included with your CompuServe starter kit.The subscription is actually free for as long as you are an active user.

Ok, you've all been crying "Where's the beef!" so in this article we will learn a little modem magic. Nothing up my sleeve...here we go!

Certainly the most misunderstood and poorly documented aspect of using the Westridge 2050 modem is the area of sending and receiving programs, especially machine code. Before I get into that area however I think I should first clear up the confusion surrounding the parameter settings for your modem. I will not give an in-depth explanation of what Duplex, word size and Parity mean as that would require much more space than we have here and besides even I'm not totally sure what some of the details! Instead I will simply give you the settings that you will need for the vast majority of your telecommunicating.

iI have found that the almost universal settings for communicating with any BBS are as follows:DUPLEX-full, CR-off, LF-off, CON-none, STOP-1, WORD-7, PARITY-even. Experience has shown that these settings may not be the best for other modems (although I don't see way not) but will work just fine for the 2050. The only time these settings need to be changed is when you are communicating directly with another micro such as another 2068 user or when you are sending/receiving a program, or when the BBS that you are connected to recommends different settings. Bare in mind however that I have found that even when they do recommend different settings, the ones described above work just fine.

When you are connected to another micro, your parity must be set to odd and the duplex to half. While we are on the subject of micro to micro modeming, I should mention the easiest way of accomplishing the connection. The simplist way that I have found is to first communicate with the other person by voice. Then both of you should enter a MODEM CMD M (caps shift+enter while in the terminal mode) at the same time. Do not hang up the phone at this point. When the screen tells you that you are connected, you may both hang up the phone. At this point, anything that either of you type will appear on both screens!

Now if you are sending a BASIC program, you must go to the data buffer menu and empty the buffer then change to CON:HEX. Next get back to the main menu and exit to BASIC. Load the program just as you normally would. When loaded, call up MTERM with PRINT USR 54016 and connect with your party as described above. Make sure that the person you are sending to has their CON:HEX and the buffer is empty. The receiving party does not have to open the buffer manually. I will show you how the sending party can do this. Once you are both communicating on screen, the receiving party can sit back and leave the driving to the sender.

The sender will now open the buffer of the receiver by

sending a control "R". As decribed in the MTERM manual, a control character is invoked by first pressing caps shift/7 and then the desired letter. After opening the receiving buffer, go to your data buffer menu and press T for transmit. Hit enter three times to get back to terminal mode and lines of hex should start scrolling across the screen. When the scrolling stops, the transmission is complete. You must now close the receiving buffer by sending a control "T". That"s it!! The person at the receiving end should have the same number of bytes as you in the buffer. They can now simply exit to BASIC and there should be a program there, ready to run or save! Note that directly after the receive buffer is closed you can type to them to indicate that you are finished the upload and to check the results.

Sending and receiving machine code is by no means complex but it is a little trickier than BASIC so listen up. The settings should be the same as sending a BASIC program however, you must expand the sending buffer to the same number of bytes that you are sending. The method for doing this is as follows.

First find the number of bytes you are going to send and plug it into the formula below. This formula will give you the pokes you need to expand the buffer.

LB=A-256*INT(A/256)

HB=INT(A/256)

where A is the number of bytes you wish to send + 26710.

Now that you have the correct pokes you must follow this procedure exactly. Load MTERM II and clear the buffer, then exit to BASIC. Next make the following pokes-23627,LB and 23628,HB. Call up MTERM II and exit to BASIC again. Now do the pokes again. I don't understand why these pokes have to be done twice but you do not get an accurate buffer expansion unless you do. Now at long last you can load in the machine code but you must load it in at location 26710. You can do this by using the following command:LOAD "filename" CODE 26710.

After the code has loaded you can call up MTERM II and connect with the receiving party. Again, the receiving party must have the buffer empty. The sending procedure is the same as BASIC. Now the person at the receiving end has to fool around a little. First they must write down the number of bytes in the buffer then exit to BASIC. Next they must save the bytes with this command: SAVE "filename" CODE 26710,bytes in buffer. Now, the receiving person has to know the correct location for the code to run at. The code is then loaded back in to the correct location with this command: LOAD "filename" CODE <location>. Then the code can be resaved now from it's correct location.

Whew! Wasn't that easy? You can send TASWORD files with the same method as sending Machine code but your CON should be NONE and you may have to hit ENTER after every line goes by on the screen as it is being transmitted because TASWORD does not embed a line feed or carriage return at the end of each line. I will be covering TASWORD file transmisson in a later column.

There is an alternative to all this fooling around to send machine code and TASWORD files. There is now a fantastic utility for MTERM II available called LOADER IV by Kurt Casby. This utility not only makes sending M/C and TASWORD files a snap, it also provides an extra 20 auto-dial numbers and auto redial when busy! I highly recommend it. The best part of all is the price. Just $7.95 U. S.

Send to:Kurt Casby
25 Battle Creek Court,
St. Paul, MN. 55119

Well that's all for this time!

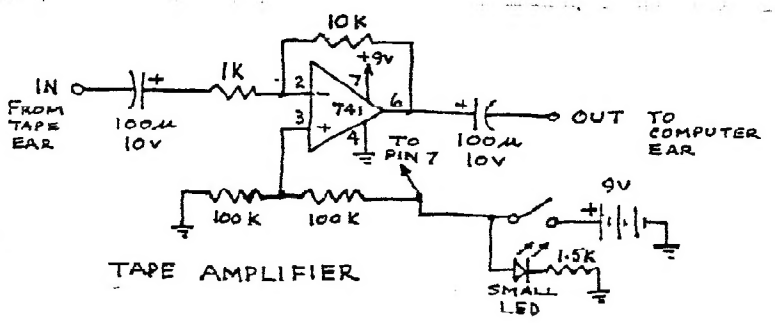
TAPE AMPLIFIER FOR LOADING WEAK TAPES

Tapes which are recorded at a very low level are difficult to load. This little amplifier will take any tape output greater than half a volt and convert it into a square wave of about 6v peak to peak. This fits nicely into the 2068's preferred range of 4.5 to 9v. It also works with the ZX-81 permitting a great latitude in volume control settings for a successful load. The tape head alignment seems to be more critical than with the 2068, hovever.

The circuit is extremely simple, using a 741 op amp as a standard inverting amplifier with a gain of 10 operating from a single power supply. I mounted mine on a small piece of perfboard and enclosed it and the battery in a 1"x2"x4" project box. I used a jack for the input and a short length of shielded wire with a male phone plug for the output. The entire circuit draws less than 6ma with no signal so the battery should last a fair length of time. The battery could be replaced with a 9v plug pack if you had a spare wall outlet.

ZX-81ers who need a non-inverted output for FASTLOAD could simply use a 1458 dual 741 and add a second inverting stage.

LD Crawford London T/S Club



TAPE AMPLIFIER

LARKEN DISK CONTROLLER FOR THE TS2068

A REVIEW

by G.F. Chambers

The LARKEN disk controller is a relative newcomer to the Timex/Sinclair scene. However four of our club members now have the LARKEN system up and running, and it is appropriate that its performence be reviewed.

The specifications for the Controller are as follows:

- 160K bytes per Disk
- 125K bits per second loading speed.
- Uses a SHUGART SA455 Drive or compatable
- Provides single density, double sided operation.
- Handles 3 data types; i.e. BASIC programs, arrays, and machine code.
- Disk control possible from immediate mode, from within a program, or from M/C routine.
- Disks are formatted for 80 1960-byte tracks.
- System holds a maximum of 54 files per disk.
- Provides commands DIRECTORY,FORMAT,LOAD,SAVE DELETE, EXIT on the EPROM DOS
- Provides above commands plus MOVE,COPY, and BADBLOCK in the Disk version of DOS.
- Six error messages are provided.
- Handles both TS2068 and Spec/ROM modes.
- Relocatable DOS'es, including a SCREEN DOS.
- Controller requires 5VDC/400ma.
- Drive reqires 5VDC/400ma. and 12VDC/800ma.

The controller is supplied as an unhoused board, and includes a short connectorized cable that plugs into the rear connector of the 2068. The other end of the board has a male connector, and the unit is supplied with a short connectorized cable to connect it to the disk drive. In addition, a connector with 4 short wires was provided as means of supplying power to the drive. The power supply is not provided, though a schematic is supplied to permit you to construct your own.

LARKEN ELECTRONICS
R.R. #2 NAVAN, ONT.
CANADA K4B 1H9

A 10 page (8 1/2" X 11") instruction manual is supplied. This provides both the installation instructions as well as the operating instructions. The manual, such as it is, is a bit sketchy and will require careful reading to glean the necessary information requireD to get the system up and running. Some improvements are required here.

The LARKEN controller is supplied uncased. Lying flat on a table in that state is both unsightly and an invitation to accidental electrical shorts, etc. The sketch provided in the manual shows it lying parallel to the 2068, projecting out on the right rear corner of the 2068. I found this to be an entirely unsatisfactory approach. Instead I installed it in a second drive housing, running it straight out at the rear of the computer. The drive rests on top of the housed controller board, with the TV set on a platform above it. This makes for a neat compact installation. The 2040 printer plugs into an edge connector on the controller board, resting in just about its normal position. The only difference is that the Printer connector is turned to face rearwards and plugs into the controller board.

The board is provided with no means of mounting. There are no holes for standoffs, and the traces are too close to the edge for convenient rail mounting. I did mount mine in a set of rails; however it was necessary to move one of the soldered connecting wires to provide enough clearance.

The system is supplied with a 2K EPROM which holds the resident DOS. Via bank switching this DOS occupies the top 2K of memory, and reserves a further 2K of memory for data manipulation. Three other DOS' are supplied on disk. If the DOS in upper memory overlays data that you wish to SAVE or LOAD, then you call in one of the other three DOS. These DOS's are designed to be located at the 28K, 48K,and in the display file areas of memory. You choose the particular DOS to be used in the SAVE/LOAD operation so that it does not conflict with the program/ data being SAVEd.

How does it work out in actual practice. Very well in fact. I have successfully SAVEd to disk a Spectrum program called SCRABBLE, that has a short BASIC program plus 40951 bytes of code starting at address 24380. I also have successfully placed TASWORD II on disk, which as some of you may know is spread out all over memory. As well, I have SAVEd one disk of games, with a front end menu to call up any game with a single key operation.

This may sound simple, but in practice it takes a bit of careful manipulation. What this means is that once you have your drive,your problem aren't over. you still have some work ahead to get your programs onto disk; its more than a matter of just pressing a few keys. I wound up writing several software routines (in BASIC) to make the system relatively user-friendly. Not that this is a problem unique to the LARKEN system. I'm sure all systems need the same sort of massaging.

The system has a COPY facility. On a single drive system, this means that it can copy one program (or block of data) at a time, and requires swapping disks during the process. There is a constraint that a program to be copied be not longer than sixteen 1960-byte blocks.

There is a MOVE capability. This allows you to LOAD data into a differest location than it was SAVEd from, a useful capability.

There is no MERGE function. Initially I thought this to be a minor shortcoming, however I now see that it would be useful in placing utilities in programs on occasion. The designer, KENNY Larken, says that it could be provided, if there was sufficient interest.

What do I think of the system? Just great. I would wholeheartedly recommend this system for the type person who feels capable of providing a power supply; to housing the unit; and to writing or otherwise obtaining user-friendly (BASIC) operating routines. For those who want a ready-to-use system, better look elsewhere. However, may I make a caution. For the 2068 you may have to look long and hard. I suspect that, despite assurances that may be given, not many systems for the TIMEX are really any more user-friendly.

The experience of our four users is unanimously favourable. The first vintage that came out had no display file DOS and had several 'bugs' in it. These flaws have been overcome, and our experience in dealing with Larry Kenny with these problems has been most encouraging and supportive.

Shortcomings? Well, it supports only one drive. Larry Kenny says that it would not be difficult to redesign for a second drive. However he is not convinced the demand is there for it. (The board has a place reserved on it for a second chip, for what that's worth).

Except for the 2K EPROM it has no onboard ROM, therefore it has to make use of the 2068 RAM for its operation. Hence the need for the relocatable DOS's.

It requires about 25 keystrokes to get the DOS up and running. Larry talks about the possibility of a push-button start, which might occupy the cartridge slot. I am using a 5-second endless-loop cassette tape with a 1-line BASIC program on it.

It does not support sequential filing. I'll leave that for you to assess it's significance.

Lack of a merge capability. See text.

If these constraints do not trouble you, by all means BUY IT!! I can say that I'm very pleased with it's performance and glad that I chose the LARKEN system. Price CAN $120 + $4 S&H.

BOB'S NOTEBOOK

QUICKSORT SUBROUTINE

This is the first of a two part series which will provide the reader with a fast method of sorting strings and then a fast method of searching the strings for particular data.

The 'Quicksort subroutine was developed from material contained in an article in Computing Now June 1983 titled Quicksort in Basic by John W. Ross.

The Quicksort algorithm, invented by C.A.R. Hoare, uses a divide and conquer technique to divide a list into successively smaller parts.

There is one main shortcoming: When trying to re-sort a list which is already almost completely sorted (eg. when a record is added to a sorted list), Quicksort will seem to hang up. To avoid this, try sorting on another field first, then sort on the desired field.

Expect Quicksort to be about 12 times faster than Bubble Sort for n=200.

To use this subroutine with your data list, include lines in the main program that set the variable n to equal the size of the list so far. In this example, r$ may be dimensioned to 200,32; whereas the entries so far might only be as far as 100. Therefore, LET n=100. If r$ is broken into fields, you will want to sort on one or other of these fields: say field 1 starting at 1 and ending at 10; therefore LET a=1: LET b=10. Then include a line GO SUB 9500.

In the second part, I shall provide a Binary Search Routine which will depend on the list already having been sorted by whatever field you wish to search on.

The variables used in these subroutines are chosen so as to avoid clashing with variables likely to have been used in your main programs. However, if there is any duplication, you will have to make suitable modifications.

Bob Mitchell
October 1985

```
9500 REM QUICKSORT
9505 CLS
9510 DIM l(z0): DIM h(z0)
9555 REM QUICKSORT SUBROUTINE
9560 LET l(1)=1
9565 LET h(1)=n
9570 LET z0=2
9575 IF z0<=1 THEN RETURN
9580 IF l(z0)>=h(z0) THEN LET z0
=z0-1
9585 IF l(z0)>=h(z0) THEN GO TO
9575
9590 LET p0=l(z0)-1
9595 LET q0=h(z0)
9600 LET y0=q0
9605 IF p0>=q0 THEN GO TO 9650
9610 LET p0=p0+1
9615 IF r$(p0,a TO b)<r$(y0,a TO
 b) THEN GO TO 9610
9620 LET q0=q0-1
9625 IF q0>1 THEN IF r$(q0,a TO
b)>r$(y0,a TO b) THEN GO TO 9620
9630 IF p0<q0 THEN LET w$=r$(p0)
9635 IF p0<q0 THEN LET r$(p0)=r$
(q0)
9640 IF p0<q0 THEN LET r$(q0)=w$
9645 GO TO 9605
9650 LET q0=h(z0): LET w$=r$(p0)
: LET r$(p0)=r$(q0): LET r$(q0)=
w$
9655 IF p0-l(z0)<h(z0)-1 THEN LE
T l(z0+1)=l(z0): LET h(z0+1)=p0-
1: LET l(z0)=p0+1: GO TO 9675
9660 LET l(z0+1)=p0+1
9665 LET h(z0+1)=h(z0)
9670 LET h(z0)=p0-1
9675 LET z0=z0+1
9680 GO TO 9575
```

TITLE LINE IN A DISPLAY

Sometimes, when presenting data on the screen, you may have wished that you could keep the top line from scrolling off the top (eg, a table with headings across the top).

Here is a short machine code routine which will do the trick.

I have located it at 60000 but you may put it anywhere:

```
EA60 0617    LD B,17
EA62 CD7F09  CALL 097F
EA65 C9      RET
```

If you want to keep the two top lines from scrolling, change 17 to 18 at EA61. Call the routine by RANDOMIZE USR 60000.

Example:

```
9960 PRINT AT 0,0;"ADDRESS    CO
NTENTS   CHARACTER "
9970 FOR I=0 TO 1000
9972 IF PEEK I<32 THEN GO TO 997
6
9974 PRINT I;TAB 12;PEEK I;TAB 2
4;CHR$ PEEK I; TAB 32
9975 IF PEEK 23689=2 THEN RANDOM
IZE USR 60000: PRINT AT 1,0;
9976 NEXT I
```

STRING INPUT AND USES FOR THE KEYWORD "LINE"

As you probably know, the keyword "LINE" is used when you are saving a program and you want it to auto-run at a specific line number. You save the program using:

SAVE "progname"LINE 10

if you want it to start at line 10.

If LINE is used in conjuction with the INPUT command, you can ask for string input, but without the quotation marks surrounding the cursor. Try this simple program:

10 INPUT "Enter your name"; LINE n$

and you will see that the cursor appears without quotation marks. The normal STOP keyword will not stop input when LINE is used. you must type CAPSHIFT 6 to stop the program at the INPUT prompt.

Now suppose that you want to use the string variable n$ from the above INPUT line to make the prompt more personal. The line:

20 INPUT "Enter how much money you have in your pocket ";n$;" " LINE a$

won't work, because it will assign the string value of the money to the variable n$ when n$ is supposed to be the person's name. Instead enclose the string to be printed within parenthesis like this:

20 INPUT "Enter how much money you have in you pocket ";(n$); " ";LINE a$

and the string n$ will be printed and the variable a$ will have the amount of money in your pocket assigned to it.

I hope you will find these hints helpful. They were obtained from the October issue of YOUR SPECTRUM.

David Hoshor

TRADE/SWAP

I have 22 program tapes and 12 books for the ZX81. I would like to swap these for a TS 2040 Printer.

Please write to PAUL Burbridge, 162 Henderson Ave., Ottawa, Ont., Canada K1N 7P6 ; or phone.

MODEM WOES, TELECOM TREATS

by Mel Richardson

While waiting for delivery of a 2050 Modem for my T/S 1000 system, I purchased a Compuserve starter kit and was ready to go when the 2050 arrived.

With no previous experience, I logged on to Compuserve easily, registered and began poking around. The tumble of messages and information left me a little dazed and dissappointed as it scrolled of the the screen, gone forever. More about this later.

The modem broke. It began to crash in the dialling sequence and soon I was out of business. Reading through the warranty page of the Westridge manual, it became clear I would be out of business for some time.

The owner is advised to call Westridge in California before returning a modem for repair. I called after six P.M. for the cheaper rates and it's still three P.M. on the coast. I learned that Anchor Automation handles the repair work now. You must call 1 818 997 7758 and not the number in the manual. For my $2.50 or so I was routed to the service dept. and explained the problem to a serviceman. He gave me a code number to quote in a cover letter and mark on the package. Pretty painless so far. A trip to customs with purchase receipt and original import papers to register everything and it was on the way.

After six weeks I had the modem back. Anchor had found no problem and within a few uses, the unit went completely dead.

Repeating the whole process, I detailed the defect more carefully in the cover letter and sent it off again. This trip lasted ten weeks, but to be fair, I sent the modem parcel post. Oh yes, I also asked Anchor to put a value of repairs in the packing slip to satisfy customs.

This time, Anchor replaced a chip and things work as they should so far.

The good news. I bought a new terminal program called "MINI XMOD". It promised to up/download Timex programs for 16 or 64K machines, something MTERM or MTERM II will not do for the T/S 1000 or ZX81. It is available for Westridge or Byte-Back modems.

XMOD will do this and more. The user can toggle a SAVE function at will and store anything displayed onscreen for later viewing or printout. Since the program resides above ramtop or in low memory with 64K, a Timex/ZX81 program can be downloaded and run or saved to tape or printer. I found I could download Apple routines and send them to the printer. With 64K, quite a long session on Compuserve can be saved and viewed at leisure offline. EMail can be composed and programs prepared for uploading before connecting.

XMODEM will not auto-dial or answer as MTERM will but I find XMODEM easier to operate in all functions. It is also easily converted to fast load formats. Thirteen 8.5 by 11 pages provide thorough documentation.

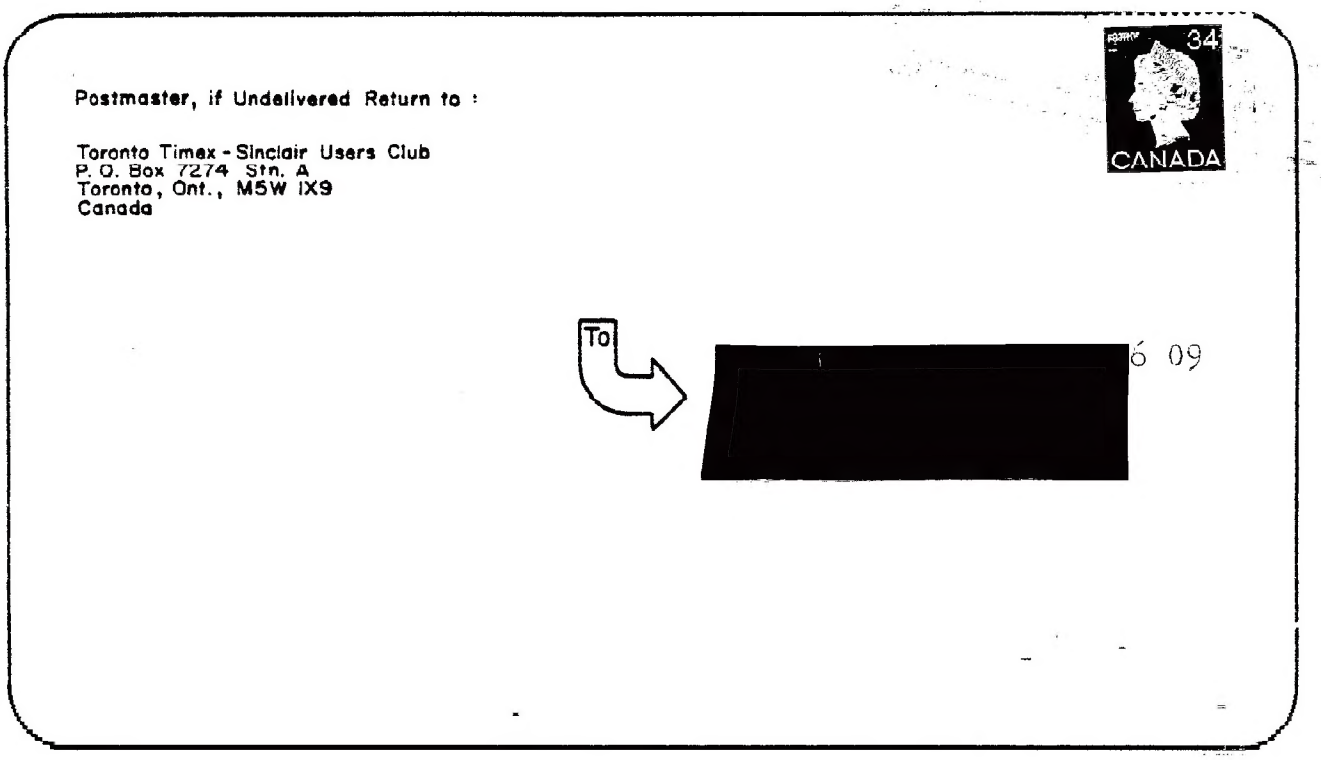
For those with T/S/ZX modems feeling shortchanged by the software, I highly recommend MINI XMOD.

MINI XMOD for
Westridge or Byte-back modems:
(specify make)
$20.00 U.S. includes p&h

WEYMIL Corporation
Box 5904
Bellingham WA
98227-5904

And for modem warranty repairs:

ANCHOR AUTOMATION
6624 ValJean Ave
Van Nuys Ca 91406
1 818 997 6493



Postmaster, if Undelivered Return to :

Toronto Timex - Sinclair Users Club
P. O. Box 7274 Stn. A
Toronto, Ont., M5W 1X9
Canada

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CANADA

To

[redacted]

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